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OSTEOMYELITIS IN PATIENTS WITH COMPLICATED FORM OF DIABETIC FOOT SYNDROME

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Annotation: Diabetes mellitus, today is a worldwide problem. The number of patients is steadily growing from year to year and according to WHO, for the last 30 years, has increased more than 5 times, and at the moment is more than 500000 million people, in the Republic of Uzbekistan, about 300000 thousand people, that is about every 11 adults in the world suffer from this disease. According to the number of complications, diabetes mellitus is one of the main causes of death (AsfandiyarovaN.S., 2015, Dedov I.I., 2018, Chuan L.L., 2013, Pan X., 2020). The most significant complication, at present, is diabetic foot syndrome, which affects about 8-10% of all patients with diabetes mellitus and is the main cause of all lower limb amputations at various levels. One of the complications of SDS, is osteomyelitis of the bones of the foot, developing against the background of infection of soft tissues and bones of the foot, with diabetic neuropathy and osteoarthropathy, according to one study complicates the course of the disease in 15% of patients (Hinchliffe.,2016, Walsh.,2017., Marphy- Lovoie.,2021), according to other data up to 50-60% (Lazaro Martinez.,2019., Antsyferov M.B., 2007, Dedov I.I., Jeffcoate W., 2004) and leads to limb amputations. "International Working Group on the diabetic foot, 2015", considers the "gold standard" in the diagnosis of osteomyelitis in SDS, clinical, radiographic picture, bacteriology and histology of bone tissue. Detected microflora growth and histologic findings of bone infection are important for the diagnosis.

Keywords: diabetes mellitus, osteomyelitis, osteoarthropathy neuropathy, amputation.

Аннотация: Сахарный диабет сегодня является общемировой проблемой. Число больных неуклонно растет из года в год и, по данным ВОЗ, за последние 30 лет увеличилось более чем в 5 раз, и на данный момент составляет более 500000 миллионов человек, в Республике Узбекистан около 300000 тысяч человек, то есть примерно каждый 11 взрослый в мире страдаю от этого заболевания. По количеству осложнений сахарный диабет является одной из основных причин смертности (Асфандиярован.С., 2015, Дедов И.И., 2018, Чуан Л.Л., 2013, Пан Х., 2020). Наиболее значительным осложнением в настоящее время является синдром диабетической стопы, который поражает около 8-10% всех пациентов с сахарным диабетом и является основной причиной всех ампутаций нижних конечностей на различных уровнях. Одним из осложнений СДС, является остеомиелит костей стопы, развивающийся на фоне инфицирования мягких тканей и костей стопы, при этом диабетическая невропатия и остеоартропатия, по данным одного исследования, осложняют течение заболевания у 15% пациентов (Hinchliffe., 2016, Walsh., 2017., Marphy- Lovoie., 2021), по другим данным достигает 50-60% (Лазаро Мартинес., 2019.,

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Анцыферов М.Б., 2007, Дедов И.И., Джеффкоут У., 2004) и приводит к ампутациям конечностей. "Международная рабочая группа по диабетической стопе, 2015" рассматривает "золотой стандарт" в диагностике остеомиелита при СДС, клиническую, рентгенологическую картину, бактериологию и гистологию костной ткани. Выявленный рост микрофлоры и гистологические данные о костной инфекции важны для постановки диагноза.

Ключевые слова: сахарный диабет, остеомиелит, остеоартропатия, нейропатия, ампутация.

Xulosa: Qandli diabet bugungi kunda global muammo hisoblanadi. Bemorlar soni yildan-yilga muttasil o'sib bormoqda va JSST ma'lumotlariga ko'ra, so'nggi 30 yil ichida bu ko'rsatkich 5 barobardan ko'proqqa oshgan va ayni paytda 500 000 milliondan ortiq, O'zbekiston Respublikasida 300 000 mingga yaqin kishi, ya'ni dunyodagi har 11 kattadan bittasi ushbu kasallikdan aziyat chekmoqda. Asoratlar soni bo'yicha qandli diabet o'limning asosiy sabablaridan biridir (Asfandiyarovan.S., 2015, Dedov I. I., 2018, Chuan L. L., 2013, Pan X., 2020). Hozirgi vaqtda eng muhim asorat diabetik tovon sindromi bo'lib, u barcha diabetik bemorlarning taxminan 8-10 foiziga ta'sir qiladi va turli darajadagi barcha pastki oyoq amputatsiyalarining asosiy sababidir. DTS ning asoratlaridan biri bu oyoq suyaklarining osteomiyelitidir, u yumshoq to'qimalar va oyoq suyaklarining infektsiyasi fonida rivojlanadi, diabetik neyropatiya va osteoartropatiya, bir tadqiqotga ko'ra, bemorlarning 15 foizida kasallikning rivojlanishini murakkablashtiradi (Hinchliffe., 2016, Walsh., 2017., Marphy- Lovoie., 2021), boshqa ma'lumotlarga ko'ra 5060% ga etadi (Lazaro Martines., 2019., Antsiferov M. B., 2007, Dedov I. I., Jeffkout U., 2004) va pastki muchalarning amputatsiyasiga olib keladi. "Xalqaro diabetik tovon ishchi guruhi, 2015 "DTS osteomiyelit diagnostikasi, klinik, rentgenologik rasm, bakteriologiya va suyak gistologiyasida" oltin standart " ni ko'rib chiqadi. Aniqlangan mikrofloraning o'sishi va suyak infektsiyasining gistologik dalillari tashxis qo'yish uchun muhimdir.

Kalit so'zlar: qandli diabet, osteomiyelit, osteoartropatiya, neyropatiya, amputatsiya.

Introduction:

Diabetic foot syndrome, one of the severe complications of diabetes mellitus, the leading role in the development of which is played by neuropathy and/or ischemia (macro and micro), subsequently ulcerative defects may develop. Which, with prolonged and ineffective treatment, can affect the bony structures of the feet, and subsequently lead to the development of osteomyelitis, and as a consequence, lead to subsequent amputations at various levels. In the studies of many authors, there are data on changes in the extracellular matrix and tissue reorganization with a significant decrease in collagen formation, changes are directly related to peripheral neuropathy, angiopathy (micro and macro), and often occurring osteoarthropathy (Lipsky, Armstrong.,2005, Brem., 2007, Lopez- Lopez., 2014, Zaitseva E.L., Doronina L.P., Molchkov., 2015). Long-existing, non-healing wounds (ulcers) of the feet often lead to infection of bone tissue and the development of a severe complication-osteomyelitis. This pathology is difficult to treat, in which it is very important to know the microflora for the most effective prescription of antibacterial therapy and the choice of method and adequate scope of surgical tactics.

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Purpose of the study: analysis of groups of patients with neuropathic and neuroischemic forms, with lesions of bones and joints of the feet according to clinical and radiological studies, patients with clinical foot ischemia confirmed by USG were excluded from the analysis.

Materials and Methods:

Patients with diabetic foot syndrome (DFS) complicated by osteomyelitis and osteoarthritis who went for consultative appointments and were treated as outpatients or inpatients in the department of purulent surgery were analyzed retrospectively. A total of 204 patients were included in the control group over 2 years:

Group 1: women - with osteomyelitis and osteoarthritis of the phalanges of fingers, metatarsal bones, interphalangeal and metatarsophalangeal joints 88 (mean age 53.4 years); men - 24 (mean age 60.3 years).

Group 2): osteomyelitis and osteoarthritis of the bones and joints of the tarsal, talus, talon, navicular, talon-cuboid, talon-palate joints - 92 women-68 (mean age 56,4 years), men-24 (mean age 60,4 years). Duration of diabetes mellitus from 1-47 years in the first group: DM 1type- 20 patients, DM 2 type- 92.In the second, duration of diabetes mellitus from 3- 32 years. DM 1 type-4 patients, DM 2 type-88 patients.

Characteristics of diabetes mellitus in the groups of patients

Diabetes mellitus	Group I	Group II
Insulin	84	76
Without insulin.	28	16
Compensation	40	36
Subcompensation	60	44
Decompensation	12	12

When a patient was referred, at the stage of specialized medical care for patients with suspected osteomyelitis or osteoarthritis in the complicated form of SDS, the diagnostic protocol included: clinical data, foot thermometry (infrared electronic thermometer UNI-T UT 301D), radiography of the bones of the feet, ultrasound angioscanning of peripheral arteries of the lower extremities, MRI if osteoarthropathy was suspected, were supplemented with clinical (localization of ulcer defects, wound depth, bone probing) and laboratory data (leukocytosis, C-reactive protein, COE), as well as before surgical treatment for osteomyelitis, computer tomography of the feet was used. All patients were referred for surgical treatment to the department of purulent surgery according to the indications.

Results and Discussion:

In the analysis of patients hospitalized in the department of purulent surgery with osteomyelitis and osteoarthritis, with complicated form of diabetic foot syndrome it was revealed that at pre-hospital stage glycemia indices (mean values of glycated hemoglobin HbA1c) amounted to 12.7% with target 7.0-7.5%) in 128 (62.7%) patients were in the stage of subcompensation and decompensation. Therefore, endocrinologist carried out

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intensification of sugar-lowering therapy in accordance with the algorithms of specialized medical care. The basal insulin was connected to the sugar-lowering therapy in tablet form or the patient was transferred to the basal-bolus scheme of insulin therapy. Limb unloading with the use of "Total contact cast". , unloading shoe was prescribed to all patients with osteomyelitis and was used until complete elimination of the inflammatory process and epithelization of wounds. Unloading in each case was applied individually, the average duration was (3-14 months).

Cause of osteomyelitis and osteoarthritis development in the groups

Reason	Osteomyelitis and osteoarthritis of the phalanges of the fingers, metatarsal bones, interphalangeal and metatarsophalangeal bones Group I	Osteomyelitis and osteoarthritis of the bones and joints of the tarsal, talus, talus-cuboid, talon-cuboid, talon-femoral bones I group	Osteomyelitis and osteoarthritis of the phalanges of fingers, metatarsal bones, interphalangeal and metatarsophalangeal bones Group II	Osteomyelitis and osteoarthritis of the bones and joints of the tarsal, talus, talus-cuboid, talon-cuboid, talon-femoral bones II group
Trauma	4	4	4	4
Ulcer	52	52	28	52
Unknown	56	56	60	60

Frequency of bone and joint lesions in patient groups

Group 1 Osteoarthritis	Group 1 Osteomyelitis	Group 11 Osteoarthritis	Group 11 Osteomyelitis
68	44	64	28

Associated ICMT - skin and soft tissue infections in groups

ICMT	Group 1	Group 11
Wound	68	48
Fistula	28	36
Phlegmon	20	16

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Initial hospitalization in a specialized hospital or repeated earlier within 4-6 months by group

Distal lesion, group I	Proximal lesion, group II
Primary- 44	Primary-56
Repeat-68	Repeat-36

Conclusion:

Based on our findings we can say that such complications as osteomyelitis and osteoarthritis of the bones of the foot in patients with SDS who are on insulin therapy, as well as those taking tablets, but most often patients on insulin therapy in the stage of subcompensation and decompensation, most often the cause of this pathology is unknown, the presence of trophic ulcer is second in importance, osteoarthritis affects the joints of the feet most often, repeated hospitalizations and surgical treatment are largely necessary.

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